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FROM: **Robert D Fish, Esq.**

RE:

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| OUR REF: 100848.213102US4 | NUMBER OF PAGES, INCLUDING COVER: 10 |
| 09/624855 - SPECIFIC MODULATION OF TH1/TH2 CYTOKINE EXPRESSION | |
| RIBAPHARM - ROBERT TAM | |

MESSAGE:

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Rutan & Tucker

Memo

To: USPTO
From: Robert D. Fish
Date: 4/2/2003~~2/25/2003~~
Re: Pat. Appl. No. 09/624855

CLAIMS AT ISSUE

The pending independent claims are as follows (emphasis added):

1. A method of modulating Type 1 and Type 2 response in activated T cells of a human patient comprising administering ribavirin to the T cells in a dosage *to promote the Type 1 response* and the Type 2 response.
3. A method of treating a patient having a disease which includes a viral component and a non-viral component, the non-viral component being characterized by reduced Type 1 levels and increased Type 2 levels in activated T-lymphocytes, comprising administering ribavirin to the patient under a protocol *intended to promote the Type 1 response* and suppress the Type 2 response.
5. A method of inhibiting a virus by growing a virus in an environment having lymphocytes which produce Type 1 and Type 2 cytokine responses, and adding ribavirin to the environment in a concentration *for the purpose of increasing the Type 1 response and suppressing the Type 2 response*.

Several weeks ago the examiner and I were discussing whether it was appropriate to allow those claims over issued claim 1 of US 5767097, claim 6 of US 5767097, and claim 5 of US 6159337, respectively. The examiner maintained that the claims were invalid as comprising statutory double patenting, and I submitted a memo on that topic. In the event that the Office refused to withdraw the statutory double patenting rejections despite my memo, I offered to cancel those independent claims and amend the dependent claims to include the corresponding limitations. As far as I know there has been no determination on that issue.

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INHERENCY

In the meantime the Office raised the issue of inherency, which is addressed by this memo. The inherency argument is that: (a) before the critical date physicians used ribavirin to treat HCV in combination with interferon alpha; and (b) although they did not know at the time that ribavirin stimulated the Th1 cytokine response, that effect was inherent in administering ribavirin. Indeed, the three above-mentioned patents in this family are already in litigation in three separate federal court actions on exactly that issue. The alleged infringers in those actions rely mainly on three cases to support their inherency position, *In Re Cruciferous Sprouts*, 301 F.3d 1343 (Fed. Cir. 2002), *Atlas Powder Co. et al. v. Ireco Inc. et al.*, 190 F.3d 1342 (Fed. Cir. 1999); and *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744 (Fed. Cir. 1987). Those cases are discussed in detail below.

The position in favor of allowability is that the claims recite volitional steps, which from a logical standpoint cannot possibly be found inherent in the prior art. It is impossible to intentionally do something without appreciating that you are intending to do it.

The pending Tam claims are structured in such a way that physicians who prescribed ribavirin in the prior art did not anticipate the claims because they did not satisfy the step of intending to alter the Th1/Th2 balance. Moreover, if a physician today prescribes ribavirin without intending to alter the Th1/Th2 balance, then he would not infringe the pending Tam claims. The claims therefore take nothing from the prior art. But, if a physician prescribes ribavirin with the intention of altering the Th1/Th2 balance as claimed, which is something entirely new, then he would infringe.

ROSCO V. MIRROR LITE

This distinction is clearly set forth in the case law. *Rosco, Inc. v. Mirror Lite Co.*, 304 F.3d 1373 (Fed Cir. 2002) holds that "under the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Rosco* 304 F.3d at 1380. Applying the principle to the *Rosco* facts, the Federal Circuit stated "Thus, the question is not whether the manufacture of the mirror using this process inherently results in a varying radius of curvature along the major axis, but whether one skilled in the art would read the '357 patent as inherently disclosing the invention of the

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'984 patent, that is, whether one skilled in the art would read the '357 patent as showing a mirror of varying radius of curvature along the major axis." *Rosco* 304 F.3d at 1381.

Applicability of Rosco to the pending Tam claims is crystal clear. The missing elements are the volitional steps. Those volitional steps are not necessarily present in the prior art (in fact they were not present at all), and they certainly were never recognized by persons of ordinary skill before the critical date (nor even could have been recognized by persons of ordinary skill because no one knew that ribavirin could stimulate a Th1 response).

HYPOTHETICAL CLAIM THAT WOULD BE INHERENT

Compare the pending Tam claims with the following hypothetical claim, which would be validly rejected on the grounds of inherency.

A method of treating a patient infected with a virus, comprising:
administering ribavirin to the patient in a therapeutic dosage, the
administered ribavirin acting against the virus by enhancing the
patient's Th1 response and suppressing the patient's Th2 response.

All the elements of that hypothetical claim are found in the prior art. Physicians were engaged in treating a patient infected with a virus (HCV), by administering ribavirin to the patient in a therapeutic dose (or it would not have been effective), and the administered ribavirin acted against the virus by enhancing the patient's Th1 response and suppressing the patient's Th2 response (even though the physicians didn't know that's what was happening).

But that hypothetical claim is a far cry from the pending Tam claims, all of which expressly assert a volitional step that cannot be satisfied inherently: Claim 1 ... administering ribavirin ... to promote the Type 1 response; claim 3 ... administering ribavirin to the patient under a protocol intended to promote the Type 1 response ...; claim 5 ... adding ribavirin to the environment in a concentration for the purpose of increasing the Type 1 response and suppressing the Type 2 response.

The pending Tam claims are drafted in a way that completely circumvents inherency. The law stands today, the claims are allowable.

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IN RE CRUCIFEROUS SPROUTS

Cruciferous Sprout involved three patents, US 5725895, 5968567, and 5968505.

Claim 1 of the '895 patent recites:

1. A method of preparing a food product rich in glucosinolates, comprising germinating cruciferous seeds, with the exception of cabbage, cress, mustard and radish seeds, and harvesting sprouts prior to the 2-leaf stage, to form a food product comprising a plurality of sprouts.

Claim 1 of the '567 patent recites:

1. A method of preparing a human food product comprising cruciferous sprouts containing high Phase 2 enzyme-inducing potential and non-toxic levels of indole glucosinolates and their breakdown products and goitrogenic hydroxybutenyl glucosinolates, comprising the steps of:

- (a) identifying seeds which produce said sprouts, with the exception of *Brassica oleracea capitata*, *Lepidium sativum*, *Sinapis alba*, *Sinapis nigra*, and *Raphanus sativus* sprouts;
- (b) germinating said seeds; and
- (c) harvesting said sprouts between the onset of germination up to and including the 2-leaf stage, to form a human food product comprising a plurality of said sprouts.

Claim 1 of the '505 patent recites:

1. A method of increasing the chemo protective amount of Phase 2 enzymes in a mammal, comprising the steps of:

- (a) identifying seeds which produce cruciferous sprouts, with the exception of *Brassica oleracea capitata*, *Lepidium sativum*, *Sinapis alba*, *Sinapis nigra*, and *Raphanus sativus* sprouts, containing high Phase 2 enzyme-inducing potential and non-toxic levels of indole glucosinolates and their breakdown products and goitrogenic hydroxybutenyl glucosinolates;
- (b) germinating said seeds;
- (c) harvesting said sprouts between the onset of germination up to and including the 2-leaf stage to form a food product comprising a plurality of sprouts; and
- (d) administering said food product, or a non-toxic extract of said food product, to said mammal.

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In *Cruciferous Sprout* the patentee argued that the prior art does not expressly or inherently disclose the claim limitations of "preparing a food product rich in glucosinolates" (claims 1 and 9 of the '895 patent), or "identifying seeds which produce cruciferous sprouts ... containing high Phase 2 enzyme-inducing potential" (claims 1 and 16 of the '505 patent, claim 1 of the '567 patent). The argument was that prior art use of such sprouts would have only possibly or probably produced the claimed result. The Court rejected that argument because it found that prior art sprouts necessarily contained relatively high glucosinolate and Phase 2 enzyme-inducing potential. The Court found that the patentee was merely claiming an inherent property of sprouts.

The ruling in *Cruciferous Sprout* was correct. In that instance all of the volitional steps were expressly or inherently found in the prior art. For example, claim 1 of the '895 *Cruciferous Sprout* patent recites "A method of preparing a food product rich in glucosinolates...." Certainly that purpose was inherently satisfied by the prior art. Cruciferous sprouts having high glucosinolate content have been eaten for centuries, and during that time people must have had a method of preparing food products that contain those sprouts. Claim 1 of the '567 patent is precisely the same. The purpose was inherently satisfied by the prior art. Claim 1 recites "A method of preparing a human food product comprising cruciferous sprouts containing high Phase 2 enzyme-inducing potential" Claim 1 of the '505 recites a more limited purpose of "... increasing the chemo protective amount of Phase 2 enzymes in a mammal", which, however, is again inherently found in the prior art because the steps are all part of the prior art. Certainly it was known to identify certain seeds containing the desired components, even though the person doing the identifying might have been identifying them for some other purpose, such as size or growth. It must also have been known to germinate and harvest the seeds up to and including the 2-leaf stage, and then eating a food product made from the sprouts.

In short, the mental steps of *Cruciferous Sprout* lend themselves to a finding of inherency. If the patentee had recited "identifying seeds which produce cruciferous sprouts ... as containing high Phase 2 enzyme-inducing potential ..." then the case may have been decided differently. The "as containing" language would have inserted a mental step that was apparently not in the prior art.

The pending Tam claims are readily distinguishable over the *Cruciferous Sprout* claims. The key is to focus on the exact claim language. Each of our claims expressly assert a mental step that is logically inconsistent with being accomplished inherently: Claim 1 recites "administering ribavirin ...

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to promote the Type 1 response"; Claim 3 recites "administering ribavirin to the patient under a protocol intended to promote the Type 1 response"; Claim 5 recites "adding ribavirin to the environment in a concentration for the purpose of increasing the Type 1 response and suppressing the Type 2 response."

ATLAS POWDER

In *Atlas Powder, Co. v. IRECO, Inc.*, 190 F.3d 1342, the patents-at-issue were US 4111727 and RE 33788.

4111727, Claim 1. A blasting composition consisting essentially of 10 to 40% by weight of a greasy water-in-oil emulsion and 60 to 90% of a substantially undissolved particulate solid oxidizer salt constituent, wherein the emulsion comprises about 3 to 15% by weight of water, 70 to 90% of powerful oxidizer salt comprising ammonium nitrate which may include other powerful oxidizer salts, wherein the solid constituent comprises ammonium nitrate and *in which sufficient aeration is entrapped to enhance sensitivity to a substantial degree*, and wherein the emulsion component is emulsified by inclusion of 0.1 to 5% by weight, based on the total composition, of an oil-in-water emulsifier to hold the aqueous content in the disperse or internal phase.

RE 33788 Claim 1. A blasting composition ... wherein the emulsion comprises about 3 to 15% by weight of water, about 2 to 15% of oil, 70 to 90% of powerful oxidizer salt *in which sufficient aeration is entrapped to enhance sensitivity to a substantial degree*, and ... based on the total composition, of ~~an oil-in-water~~ a water-in-oil emulsifier to hold the aqueous content in the disperse or internal phase.

The Federal Circuit determined that the only possible distinction over the prior art is that shown in italics above, namely "sufficient aeration...." The Court also found that the limitation must have been inherently satisfied by the prior art because the prior art contained substantially the identical formulation as that of the preferred embodiment of the claimed formulation.

The critical point to note here is that all of the claims at issue are apparatus claims, not method claims. This is important because an intent limitation does not provide patentable distinction in

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apparatus claims.¹ In the phrase "in which sufficient aeration is entrapped to enhance sensitivity to a substantial degree", the term "to enhance sensitivity to a substantial degree" is therefore either interpreted as a limitation on the definition of "sufficient aeration", or is ignored as surplusage. Thus, *Atlas Powder* is completely off point with respect to the pending Tam claims. The *Atlas Powder* claims are all apparatus claims in which there are no mental steps to distinguish over the prior art, while the pending Tam claims are all method claims in which there are mental steps that distinguish over the prior art.

TITANIUM METALS

Titanium Metals Corp. v. Banner, 778 F.2d 775 (Fed. Cir. 1985) is similar to *Atlas Powder*. Instead of method claims, as we have in the pending Tam claims, Titanium Metals deals entirely with composition claims.

Claim 1: A titanium base alloy consisting essentially by weight of about 0.6% to 0.9% nickel, 0.2% to 0.4% molybdenum, up to 0.2% maximum iron, balance titanium, said alloy being characterized by good corrosion resistance in hot brine environments.

As discussed above, mental steps in apparatus and composition claims do not provide any patentable distinction over the prior art. All one has to do to find inherency in the prior art is to establish that the claimed apparatus or composition is found in the prior art. *Ipsa facto* any property being claimed must also be in the prior art, although it was not recognized.

Does this mean that inherency only applies to apparatus and composition claims? Not at all. The rule we are trying to clarify here is completely reasonable, and fully in line with the Federal Circuit holding in *Rasco*. In method claims inherency exists only where the claimed step is a necessary consequence (i.e. a property) of the prior art. For a mental step to be inherent in a method claim, the mental step must be a necessary consequence that no one realized occurred. For example, if

¹ It is well settled that patentability of apparatus claims must depend upon structural limitations and not upon statements of function. *In re Startmann*, 32 C.C.P.A. (Patents) 813, 146 F.2d 290, 64 U.S.P.Q. 245, and *In re Gregg*, 44 C.C.P.A. (Patents) 904, 244 F.2d 316, 113 U.S.P.Q. 526; *In re Sinex*, 50 C.C.P.A. 1004, 309 F.2d 488, 492, 135 U.S.P.Q. (BNA) 302, 305 (CCPA 1962) (statement of intended use in an apparatus claim failed to distinguish over the prior art apparatus). Thus, preambles describing the use of an invention generally do not limit the claims because the patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure. *In re Gardiner*, 36 C.C.P.A. 748, 171 F.2d 313, 315-16, 80 USPQ 99, 101 (CCPA 1948) ("It is true to state that the patentability of apparatus claims must be shown in the structure claimed and not merely upon a use, function, or result thereof.").

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the prior art included the recognition that ingesting 0.5 mg/day of arsenic will produce illness, then a claim reciting "recognizing that ingesting 1 mg/day of arsenic will produce illness" would be inherent in the prior art. But claim reciting "ingesting 0.5 mg/day of arsenic for the purpose of curing toenail fungus" would not be inherent in the prior art, even if it works. That extra element of "for the purpose of" is not in the prior art, and logically cannot have been inherent in the prior art.

The claim steps in the Tam patents involving cognitive or volitional acts are not *ipso facto* outside the law of inherency. But to find those elements inherent in a prior art reference, the reference would have to demonstrate that the cognitive or volitional acts are a consequence of something else in the reference. After four separate examinations, involving multiple primary and supervisory examiners, there are no such references before the Office.